

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

Weber *et al.*

Appl. No. 10/753,069

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For: Systems and Methods for Trading
Actively Managed Funds

Art Unit: 3695

Examiner: PERRY

Atty. Docket: 00322.0008.CPUS01

Declaration of Charles A. Baker Under 37 C.F.R. § 1.132

I, Charles A. Baker, do hereby declare the following:

Background

1. I attended California Polytechnic State University at San Luis Obispo, and earned a B.S. in Economics in 1975. After that, I attended Claremont Graduate University, where I earned an M.B.A. in 1978.
2. From 1984-1991, I worked with Leland O'Brien Rubinstein ("LOR"), an investment management firm. In 1988, at LOR, we created the "Super Trust," which was a predecessor of the exchange-traded fund ("ETF").
3. I began working for Alpha Strategies, LLC in 1999, doing product development and marketing of new ETF products. Alpha Strategies began a relationship with the American Stock Exchange ("AMEX") at that time with the objective of developing systems and methods that would enable the creation of exchange-traded funds that are actively managed. As described below, our goal was to develop systems and methods that would overcome the Transparency Problem.
4. In 2003, I was hired by the AMEX to continue work on the development of Actively Managed Exchange Traded Funds ("AMETFs"). In October 2008, AMEX was acquired by NYSE Euronext ("NYSE"), the new entity becoming NYSE Amex LLC, an indirect, wholly-owned subsidiary of NYSE Euronext. My current position with the NYSE is Managing Director and my primary responsibilities include the development and marketing of AMETFs.
5. I am familiar with the specification, claims, and drawings of U.S. Patent Application Serial No. 10/753,069, including all claims filed with that application as well as the claims as amended on January 30, 2006; November 28, 2006; August 15, 2008; May 26, 2009; and the current amendment canceling claims 1-55, 60-95, and 100-110, and amending claims 56-59 and 95-97. Each of the claims that were pending in this application after these various amendments have been clearly understandable and

sufficiently definite enough for those of ordinary skill in the financial industry, to whom the invention is directed, to understand their scope and meaning. Currently pending claims 56-59 and 95-97 are attached to this declaration as **Exhibit 1**.

6. On March 18, 2005, I signed a declaration in U.S. Patent Application Serial No. 09/536,258 ("the '258 application"), now U.S. Patent No. 7,099,838 (the "2005 Declaration"). In that declaration, I cited several articles and presented several facts demonstrating the non-obviousness of the invention claimed in the '258 application. The evidence of non-obviousness, based on the articles and facts I cited, applies with equal force to the claims of the present '069 application. I therefore incorporate the entire 2005 Declaration by reference.
7. I have studied the Final Office Action mailed on August 4, 2009 ("Office Action") in the '069 application. It is apparent from the discussion of the 2005 Declaration that we have not yet made clear to the Examiner the significance of several critical articles I cited, the claims, and why the invention would not have been obvious.

The Transparency Problem

8. As I explained in the 2005 Declaration, the primary problem to be overcome in developing AMETFs was to determine how to provide the market with sufficient information to trade AMETFs efficiently, while simultaneously masking from the market the identity and weight of the securities and other financial instruments held in the portfolio of the fund (the "Transparency Problem").
9. In order for the shares of exchange-traded funds to trade in the secondary market efficiently during the trading day, it is necessary to provide the market with sufficient and current information about the portfolio of the fund (that is, the securities and other financial instruments held by the fund) so that traders can properly value the fund and insure that its traded value closely tracks the value of the underlying portfolio during the day. Without this information, traders cannot be confident that the traded price of the fund is close to the current value of the fund holdings, and the fund becomes a much less attractive investment. Thus, one important piece of information traders use is the "intraday indicative value" ("IIV," also sometimes referred to in the industry as the intraday indicative optimized value, or "IOPV") of a fund, which provides an estimate of the fair market value of shares of the fund during the trading day.
10. At the time of our invention, all ETFs had as their investment objective the goal of tracking the value of a publicly available index, which meant that traders essentially knew what was contained in the portfolio of the fund – the securities or other financial instruments contained in the index, held in the same approximate weight as in the index. With this information, traders could then determine if the trading price of the fund during the day was fair, and due to the activities of traders and arbitrageurs, the price of the share in an ETF did not differ significantly from its underlying value, making it a much more attractive investment.

11. AMETFs, however, are not designed to track a publicly available index. Rather, the portfolio of an AMETF is determined by a fund manager, whose job it is to pick securities or other financial instruments in which the fund will invest. For traditional actively-managed funds (meaning those that are not traded), managers generally do not want to provide current transparency, since the perceived value of their services lies in their choice of assets. Transparency allows “free-riding,” when investors mimic the trades of active managers, profiting from their expertise without buying their funds. Transparency also allows “front-running,” which is when investors learn a large fund is buying a position in a security and they then buy the same position in advance to benefit from the price increase from increased demand created by the fund’s purchase. Free-riding and front-running hurts the performance of the fund and investment returns of fund investors. Managers of AMETFs will have the same concerns about transparency. The problem of how to overcome the competing goals for an actively managed exchange traded fund – maintaining secrecy of fund holdings while at the same time providing intraday information that allows for efficient trading of the fund shares – was the problem that we needed to (and eventually did) solve in order to make AMETFs possible, and it is the solution to that problem that is embodied in the present application.

**The S.E.C. Concept Release Provides Unquestionable
Evidence that Our Invention Would Not Have Been Obvious**

12. In November 2001, a year and a half after we filed our first patent application, the U.S. Securities and Exchange Commission (“SEC”) issued a concept release on “actively managed exchange traded funds,” the purpose of which was to gather information from the industry about how AMETFs might work (the “Concept Release,” Exhibit A to the 2005 Declaration).
13. The fact that the SEC was soliciting information from the industry about how AMETFs might work shows that the industry was very much interested in producing such products – otherwise, there would have been no need for the SEC to gather information about the proposed products. Indeed, the SEC acknowledged in the Concept Release that “the concept of ‘an actively managed ETF’ has attracted significant attention, even though many of the details regarding the potential operations of actively managed ETFs are apparently still in development.” (Concept Release at 3).
14. If a solution to the Transparency Problem had been obvious at this time, one would not expect the SEC to have discussed the problem at all – how to provide the transparency trading AMETFs requires would have been obvious to those in the financial industry, including those responsible for regulating that industry, and there would have been no need to discuss it at all. The fact is, however, that the Concept Release discusses the Transparency Problem in great detail and makes it clear that the SEC considered the Transparency Problem one of the most important “operational issues” to be overcome in the development of AMETFs. (Concept Release at 9-11).
15. The Concept Release contains a section entitled “Operational Issues Relating to Actively Managed ETFs.” The very first “operational issue” that it discusses is entitled,

“Transparency of an ETF’s Portfolio.” This subsection begins by noting that all previous exchange-traded funds had been transparent and that this transparency allowed “arbitrageurs [to] determine whether to purchase or redeem” their shares. The subsection then lists a series of questions relating to what level of transparency would be required in AMETFs:

What level of transparency in portfolio holdings is necessary to allow for effective arbitrage activity in the shares of an actively managed ETF? Should an actively managed ETF be required to disclose the full contents of its portfolio? Is it sufficient for an actively managed ETF to disclose only a sample of its portfolio or the general characteristics of its portfolio? Can effective arbitrage occur without any disclosure of the specific securities in an ETF’s portfolio (i.e., arbitrage that is based strictly on the NAV [net asset value] and market price of ETF shares)?

How frequently would the investment adviser of an actively managed ETF need to disclose the portfolio securities or characteristics of the ETF portfolio? Would an investment adviser need to disclose intra-day changes in the portfolio of an actively managed ETF?

Would frequent disclosure of portfolio holdings lead to “front running” of the ETF portfolio, where other investors would trade ahead of the ETF and the Creation Unit purchasers who must assemble Portfolio Deposits? Would frequent disclosure of portfolio holdings lead to “free riding,” where other investors would mirror the investment strategies of an actively managed ETF while the ETF investors pay the advisory fees?

(Concept Release at 10-11).

16. As demonstrated by these questions, our solution to the Transparency Problem – which was to create a proxy portfolio through the use of factor analysis that would closely mimic the performance of the AMETF, without revealing the actual portfolio of the ETF – was certainly not obvious to the SEC. The Concept Release does not mention our approach, instead suggesting that some level of transparency was necessary to make AMETFs “operational.”
17. According to the SEC’s website, the SEC received approximately twenty responses to the Concept Release, including responses from leading financial firms, such as Morgan Stanley, The Vanguard Group, State Street Bank & Trust, Barclays Global Investors, and Susquehanna International. I have reviewed all of these responses. If our solution to the Transparency Problem had been obvious, as the Examiner contends, then one would expect that one of these leading financial firms would have discussed it in response to the SEC’s questions on the Transparency Problem. Yet, with one exception (which as

discussed below, is not really an exception), not one of these responses addresses our solution to the Transparency Problem. That one exception is a response submitted by Mr. Ivar Bjornstad, who I personally know to have formed a partnership by that time with Mr. Terry Norman. Mr. Norman had been a programming contractor hired by my former employer, Alpha Strategies LLC, to work on the American Stock Exchange's project to develop a solution to the Transparency Problem. The solution referred to by Mr. Bjornstad in his comment to the Concept Release is our solution. Not one comment to the Concept Release independently raises our solution to the Transparency Problem.

Other Secondary Considerations of Non-Obviousness

18. As the Concept Release demonstrates, there was at the time of our invention and still to this day remains significant market demand for actively managed exchange traded funds and, more generally, for funds whose shares can be traded without revealing the assets of the traded funds to investors who trade shares of the traded funds. I am personally aware of major mutual fund companies working on bringing such traded funds to the market. Further evidence of market demand for such traded funds can be found in several of the articles I cited in the 2005 Declaration, including the SEC Concept Release (2001) and the Wall Street Journal article from May 16, 2000. A report by the Financial Research report characterized AMETFs as "the Holy Grail of the ETF industry." (**Exhibit 2**).
19. There was at the time of the invention, and even since has been, a long-felt need in the financial industry for a solution to the Transparency Problem. I am personally aware of the need and desirability of such a solution, and the need was reflected in several of the articles I cited in the 2005 Declaration, including the WSJ Europe article and the Sovereignwealth.com article.
20. More recently, a July 2009 Wall Street Journal article (**Exhibit 3**) from July, 2009 states that "The challenge in moving beyond indexes is that stock pickers usually are loath to frequently reveal their holdings." The article then goes on to describe how new AMETFs solve the Transparency Problem by just resigning themselves to be transparent – either limiting their stock picks to "big, heavily traded stocks" or using multiple managers. Similarly, a Morningstar article (**Exhibit 4**) from 2007 describes several imperfect solutions involving transparency and limiting managers' ability to make trades, and which fail to address the Transparency Problem. All of the 16 actively managed exchange traded funds on the market today are, in fact, fully transparent.
21. Experts in the financial industry were skeptical at the time of our invention that a non-transparent solution to actively managed traded funds was possible. For example, the Wall Street Journal, Europe article I cited in the 2005 Declaration, which was published the same year we filed our first patent application, stated that "for actively managed funds, such lists [of securities to buy and sell for a fund] mean fund managers are forced to disclose their hands before action is taken. That might create unwanted demand for those stocks, because other investors could front-run, or pick up the same stocks on expectations of buying by ETF fund holders." The article recognized this issue as "the biggest challenge."

22. Once our solution was disclosed, the financial industry praised us for finally coming up with a way to allow fund trading without requiring disclosure of the fund assets to investors who trade shares in the fund. For example, Financial Research Corp. (Ex. H to the 2005 Declaration) characterized us as "a few rocket scientists at the American Stock Exchange." In a separate report in 2006, it recognized our solution as "out in front." (Exhibit 2, p. 11). The Wall Street Journal (1/2005) article likewise recognized our solution.
23. In April 2000, a month after we filed our first patent application, the industry believed that AMETFs would have to be fully transparent: "How can equivalent information be provided for managed funds? This would require real-time portfolio disclosure, and real-time public availability of all purchase and sale decisions by a fund manager, allowing others to copy and even undermine a manager's trading strategy." (See Exhibit H, p. 129, from my 2005 Declaration). At the time of our invention, the industry taught away from any non-transparent AMETFs.
24. Even as late as 2007, the financial industry was teaching away from our non-transparent approach to actively managed exchange traded funds. A June 1, 2007 article on registered rep.com states that "To maintain efficient NAV pricing, transparency is a must." (Exhibit 5). Our approach allows efficient intra-day pricing without requiring transparency.
25. There has been strong interest in our solution to the Transparency Problem. Two firms currently license our intellectual property, including this application, for use in launching their actively managed ETFs. One of these firms, Claymore Advisors, which manages more than \$11 billion in assets, currently has an exemptive application pending before the United States Securities and Exchange Commission ("SEC") for an actively managed ETF using our invention. (Exhibit 6). In their application, Claymore notes that the Transparency Problem was significant, but that they are using our solution to overcome that problem:

Several issues were considered in designing a system of intra-day market trading for which an arbitrage mechanism is not based upon Transparency. By itself, an Active ETF that is not Transparent provides limited information on which to base negotiated trading prices. Investors do not know either (i) the specific assets comprising such Active ETF's portfolio or (ii) the estimated intra-day net asset value ("NAV") of such fund throughout the trading day. This limited information is insufficient for many market participants and liquidity providers . . .

* * *

Applicants believe that the AMEX has created a workable solution for these problems by developing and patenting a process that employs a statistical risk factor methodology that looks very

different from the actual portfolio holdings of an Active ETF, in terms of issuers and weights, but which behaves very much like the actual fund holdings on an intra-day basis.

(pp. 15-16).

26. Many mutual fund companies have expressed significant interest in our invention. We presented our invention to a Vice President of Product Development and a Director of Product Development at one of the largest mutual fund companies in the country in January 2003. That company had been trying to develop actively managed exchange traded funds, but had given up on the idea because it could not see how to solve the transparency problem, and believed too much value would be given up if the funds were transparent, or even if the funds were not transparent but the net asset value, or NAV, of the funds were calculated and published in real time. They felt that our approach offered a solution to the transparency problem. The Vice President informed us that he had never heard anyone else suggest the approach of developing a “masking” (proxy or hedging) portfolio that closely tracks a fund’s returns to use as a substitute for the intraday value calculation and for hedging. He felt that our approach dramatically improved upon the simple approach of calculating the NAV-based intraday value. He told us our approach “moved forward the process” of exchange trading an actively managed fund. We have visited many other major U.S. mutual fund companies since then to discuss our actively managed ETF invention. Fourteen fund companies have shown sufficient interest in our invention to ask us to test our process using histories of actual mutual funds they manage. The testing process, which requires us to demonstrate that our solution works by loading years worth of transaction data into separate computers. We then replicate results for that data as if our solution were actually operating. The processes of gathering data, testing, and analyzing results has been time-consuming and expensive for the fund companies. Nevertheless, to date, we have run over 40 such tests at the request of these major financial institutions. In every case, the companies concluded that the process had generated a satisfactory result.
27. There has been significant interest in the industry in our invention. I have been invited to make many presentations at financial industry conferences regarding our actively managed ETF invention. At one particularly important conference in 2005, I was invited to make a presentation entitled “Actively Managed Exchange Traded Funds: Risk Modeling As An Enabling Technology” to the Institute for Quantitative Research in Finance (the “Q-Group”). The Q-Group is an organization whose members are the leading and most authoritative individuals working on quantitative issues in the financial industry. Attached as **Exhibit 7** is a printout from the Q-Group website. Attached as **Exhibit 8** is a publication from the Q-Group that includes a summary of my presentation.
28. Our invention is much more than simply combining actively managed funds with exchange traded funds. Those of ordinary skill – many of whom were trying to find a solution to this problem – would not have found it obvious to use a proxy portfolio in order to provide an estimated intraday value of the traded fund without disclosing the assets of the traded fund to an investor who traded shares of the traded fund.

Examiner's Critique of 2005 Declaration

29. On pages 7-12 of the Office Action, the Examiner critiqued several statements in my 2005 Declaration. That declaration may not have communicated in strong enough terms the pressing need in the financial industry for a solution to the Transparency Problem to allow for actively managed exchange traded funds, and the knowledge of those of ordinary skill in the art regarding this subject at the time of our invention and in the following years.
30. In my 2005 Declaration, I cited the SEC's Concept Release, issued in 2001. The Concept Release clearly demonstrates, as discussed above, that the industry demanded a solution that would allow actively managed exchange traded funds. The Examiner mistakenly asserts that "the dates are mismatched." The concept release shows sustained industry demand for our invention even a year after the date of our initial patent application on March 27, 2000. This continuing industry demand shows that our solution would not have been obvious at the time and even after we invented our solution.
31. The Examiner appears to make a distinction between the "technology" that was needed to allow for actively managed exchange traded funds and the claims of the '069 application, directed towards a "fund," a "method for calculating an estimated value," and a "method comprising trading shares of a traded fund and of an exchange traded fund." The claimed fund and methods for estimating its value and trading shares as claimed embody the technology I referred to in my 2005 Declaration. Before we developed the technology claimed in those claims, nobody knew how to provide sufficient information to create a traded fund or methods for estimating its value and trading the fund shares without full transparency. Our claimed technology provided the solution. Those of ordinary skill in the art, reading the claims of the '069 application as a whole and not just the excerpts cited by the Examiner, would recognize that the claims do indeed recite technology that solves the problems recognized in the SEC's 2001 concept release.
32. The Examiner incorrectly asserts that the Wall Street Journal (WSJ 5/2000) article I cited shows obviousness. We filed our initial patent application on the concept in March of 2000; the WSJ 5/2000 article shows industry demand for actively managed exchange traded funds two months after our filing. While the WSJ 5/2000 article notes that both actively managed funds (not traded on a secondary market) existed and index-based exchange traded funds existed, the article did not disclose or suggest how they might be combined in a way that addressed the Transparency Problem, thereby allowing the combination to maintain the secrecy of the holdings of an actively-managed portfolio, a key characteristic of and value for actively-managed funds. How to combine these concepts, which was acknowledged to require overcoming the Transparency Problem, was at the time a major problem in the art, and the problem that our invention was the first to address. The Examiner wrote that such a combination "would have worked together predictably." This statement is inaccurate. Nobody in the financial industry at the time predicted how to combine the concepts of an actively-managed fund that maintains the confidentiality of the fund holdings with an exchange-traded fund (which up to that point, and to this day, disclose the fund holdings on a daily basis).

33. The Examiner misreads the claim limitation “identities of the traded fund assets are not disclosed to an investor who trades shares of the traded fund” to mean “never disclosed.” Those of ordinary skill in the art would not read this limitation as requiring that the assets of the traded fund are “never disclosed.” Those of ordinary skill in the art know that SEC regulations require even actively managed funds (that are not traded) to disclose their holdings periodically (at least quarterly), and the reports of such holdings may be submitted on a delayed basis. In particular, they are not disclosed on a daily basis as they are for most index-based ETFs. Those of ordinary skill in the art would recognize this claim limitation to be consistent with SEC regulations, and not to be artificially narrowed by the “never” limitation the Examiner imports.
34. The Examiner states that the WSJ (1/2005) article I cited describes the main hurdle to AMETFs as “overcoming issues of transparency,” but then the examiner states that the solution “has nothing at all to do with the technical hurdle Mr. Baker cites in [¶] 10.” The Examiner misinterprets the WSJ article, which precisely describes the same technical hurdle – the Transparency Problem – that I described in paragraph 10 of the 2005 declaration. All previous ETFs were transparent, giving the market sufficient and current information about the fund holdings to invest and trade the ETF shares based on the market’s valuation of the fund holdings. In contrast, active fund managers do not want to provide current transparency, since the perceived value of their services lies in their choice of assets. Transparency allows “free-riding,” when investors mimic the trades of active managers, profiting from their expertise without buying their funds. Transparency also allows “front-running,” when investors learn a large fund is buying a position in a security, they buy the same position in advance to benefit from the price increase from increased demand created by the fund’s purchase. The problem of how to overcome the competing goals of providing information for the market and maintaining secrecy for the fund manager for an actively managed exchange traded fund was widely recognized in the industry at the time, as I explained in paragraphs 10-14 of the 2005 Declaration. The WSJ (1/2005) article post-dates our invention by several years, and explains that we had overcome “the main hurdle to constructing actively managed ETFs.” Other contemporaneous articles, including the Business Week article cited by the Examiner, discuss why the industry thought that actively managed funds cannot be exchange traded because active fund managers would not want to provide the same amount of pricing information provided by ETFs.
35. The invention is the combination of creating a proxy portfolio and using the proxy portfolio to create an estimated value during the trading day of a traded fund, such value being called the intraday indicative value, or IIV. Related inventions claimed in other of our patents and applications related to creating a hedging portfolio and using the hedging portfolio to hedge investments in shares of an actively managed fund. None of these inventions existed before our invention, and the industry recognized the importance of our invention, as reflected in the articles I cited in the 2005 Declaration.
36. The Examiner states that “the only issue was regulatory reform, not actually creating the proxy or estimating the value of a fund using a proxy; these were old and well-known.” This statement is incorrect. As indicated in paragraphs 10-14 of the 2005 Declaration,

the industry recognized the Transparency Problem as being the main issue. While the SEC would need to grant an exemption from SEC rules before an AMETF product could be offered to the market, that exemptive application process, which is well-established, through which all ETFs must obtain SEC exemptions, was not seen in the industry as being a bigger challenge than the Transparency Problem. Furthermore, “estimating the value of a fund using a proxy” was not “old and well-known.” The Kat, Fung, and Dor articles the Examiner cites post-date our invention by several years and do not teach allowing trading of fund shares without fund transparency. Similarly, Sharpe’s work on factor modeling does not teach trading fund shares without requiring fund transparency. In fact, we cite several references to the general topic of factor modeling in our application, recognizing it as well-established. However, none of our citations, and none of the Examiner’s references, teach the critical aspect of applying factor modeling in a way that would allow trading of fund shares without requiring transparency of fund assets. Our invention was the first time factor modeling was applied to accomplish this end.

37. The Examiner misreads the WSJ Europe (9/2000) article. This article states that, as of 9/2000 (six months after our earliest application date), the AMETF “faces huge hurdles that could take years to clear. . . . thorny issues must be settled before these funds can get off the ground. The biggest challenge is front-running.” By describing the problem but failing to offer a solution, the article clearly shows the non-obviousness of the invention. Those of ordinary skill in the art at the time would have disagreed with the Examiner’s conclusion to the contrary.
38. The Examiner misreads Quill’s quote as relating to AMETFs, when, in fact, it refers to (index-based) ETFs that were already on the market at that time. While regulatory hurdles did delay some ETFs at the time, ETFs ultimately became a huge success, and now hold over seven hundred billion dollars in assets worldwide. Contrary to the Examiner’s allegation, those of ordinary skill in the financial industry at the time recognized that the Transparency Problem was the main hurdle to making AMETFs, not regulatory issues. As Quill notes, only 31% in the industry at the time did not recognize a need for actively managed ETFs, but, such was the industry demand that far more, over 53% of industry experts expected to see AMETFs within two years of the survey in 2000. Quill shows there was strong unmet industry demand, evidence that our invention, which would help meet that demand, would not have been obvious.
39. Appendix D of Quill (p. 129) is an article from April 2000, the month after we filed our first patent application, noting that “Actively managed ETFs have yet to be invented. For now, they exist only as a very exciting theory about a type of product that may possibly be engineered at some indefinite point in the future.” This article shows the strong incentives in the industry to provide AMETFs: “Experts expect \$58 billion will be raised in first year of new product.” It explains that AMETFs “have yet to be filed with the SEC because nobody has yet been able to figure out how to create one. Indeed, most financial professionals find it hard to conceptualize how such an instrument might be constructed even in theory.” It goes on to praise our group for figuring out how to construct AMETFs, then it actually teaches away from our very solution: “the mechanics

of IB ETFs require precise knowledge about what securities are held in the underlying portfolio so that specialists that support the portfolios can maintain appropriate hedging positions. How can equivalent information be provided for managed funds? This would require real-time portfolio disclosure, and real-time public availability of all purchase and sale decisions by a fund manager, allowing others to copy and even undermine a manager's trading strategy." This was the general feeling in the industry at the time of the invention, that transparency would be required. We were the first to develop the solution that allowed AMETFs without requiring transparency.

What Dembo Teaches

40. The Examiner discusses the Dembo patent, U.S. Patent No. 5,799,287, throughout the Office Action. I have studied the Dembo patent and its claims, and I thoroughly understand the subject matter disclosed and claimed in the Dembo patent. I have long been familiar with portfolio replication as discussed in the Dembo patent. The Examiner is mistaken about three important aspects of the Dembo patent.
41. First, on page 13 and pages 27-30, the Examiner states that "Dembo's portfolio is indeed traded," then quotes portions of the abstract relating to "a set of transactions that will create a replicating portfolio." Those of ordinary skill in the art would understand the quoted portions of Dembo to relate to trades of the assets underlying the replicating portfolio. Those of ordinary skill in the art would not read Dembo to teach or suggest that the target portfolio is a traded fund. Nothing cited in the Office Action suggests otherwise.
42. Second, on page 29, the Examiner implies that Dembo teaches "calculating the estimated value of the traded fund based on the value of the proxy portfolio." Nothing in Dembo teaches or suggests using a proxy portfolio (or "replicating portfolio") to estimate the value of a non-transparent traded/exchange traded fund (or "target portfolio"). Dembo repeatedly states that the portfolio manager "controls" the target portfolio, which those of ordinary skill in the art would understand implies knowledge of the portfolio assets. *See* Dembo at col. 1, line 15; col. 2, lines 44-45; col. 5, lines 13-15; etc.
43. Finally, Dembo's approach uses a scenario optimization technique rather than a risk factor model technique. Therefore, those of ordinary skill in the art reading Dembo would readily recognize that Dembo does not teach at least three limitations of the claims pending in this application: (1) "an investor who trades shares of the [traded/exchange traded] fund," (2) calculating the estimated value of the [traded/exchange traded] fund based on the value of the proxy portfolio," and (3) "determining a set of risk factors from a risk factor model."

The Scope of the Claims Would Be Understood by Those of Ordinary Skill in the Art

44. On page 21, the Examiner states that "The extent of 'substantially the same' is not clear" in the context of claim 97. The limitation reads, "a proxy portfolio having substantially the same sensitivity coefficients as the fund." The claim goes on to require "using a computer to calculate the estimated value of the fund based on the value of the proxy

portfolio.” Those of ordinary skill in the art, reading this claim in light of the specification, would clearly understand that “substantially the same” means that the sensitivity coefficients of the proxy portfolio would be similar enough to those of the fund that the value of the fund can be estimated by calculating the value of the proxy portfolio. The specification is clear that the purpose of estimating the value of the fund is to provide sufficient information for investors to make trades. The application provides examples on pages 41-46 and in Figures 7-9 that show the degree of accuracy obtainable using our invention. Those skilled in the art would understand that the proxy portfolios had “substantially the same” returns as the test funds. But more importantly, those of ordinary skill in the art would understand what was meant by “substantially the same” because they know how closely the returns of one security must track those of another security in order to use the first to hedge or estimate the value of the second. In the context of the claim and the specification, the estimated value must be close enough to the actual fund value to base the price of the fund in order to trade shares of the fund.

45. Further evidence that those of ordinary skill in the art would understand what “substantially the same” means in the context of claim 97 comes from the Claymore SEC exemptive application. (**Exhibit 6**). In that application, Claymore states that “each Fund, designed to use the AMEX Proprietary Methodology, should function similarly as an Index ETF structured to use Transparency, in providing reasonably tight spreads and a reasonably reliable hedging mechanism during each trading day.” (**Ex. 6, p. 15**). Those of ordinary skill in the art, reading the claims in light of the specification, would understand that a proxy portfolio having substantially the same sensitivity coefficients as the fund would provide reasonably tight spreads, as Claymore represents to the SEC.

What Gibbons Teaches

46. I have studied the article the Examiner cited by Gibbons *et al.*, “Testing Asset Pricing Models with Changing Expectations and an Unobservable Market Portfolio,” J. Financial Econ. 14 (1985) 217-236 (“Gibbons”). I understand this article well, and am very familiar with the subject matter and terminology used in the article.
47. Gibbons discusses the Capital Asset Pricing Model (CAPM), a well-known model for pricing individual securities or portfolios. An underlying component of the CAPM is a concept of the “market portfolio,” which is a theoretical construct consisting of the weighted sum of every asset in the market – including every asset with any worth in the entire world. Of course, as is well-known in the financial industry, such a portfolio cannot be constructed in practice, or even known by anybody. This is why Gibbons and those in the financial industry refer to the market portfolio as being “unobservable.” Instead, those attempting to test the CAPM use a “proxy” to the market portfolio, such as a particular market segment like the S&P 500 index. However, as cited by Gibbons (p. 218 and 233), the approximation of using a market proxy introduces errors into empirical tests of the CAPM. Roll, “A Critique of the Asset Pricing Theory’s Tests – Part I: On Past and Potential Testability of the Theory,” J. Financial Econ. 4 (1977) 129-176. Gibbons discusses techniques to reduce the errors introduced by using a proxy to the market portfolio.


48. Gibbons differs from our claimed invention in many ways. The Examiner appears to make a connection between our claim limitation “the assets of the traded fund are not disclosed to an investor who trades shares of the traded fund” and Gibbons discussion of an “unobservable market portfolio.” These concepts are very different because the traded fund in our claims is not “unobservable” – it is just not disclosed to a particular investor. The “market portfolio” discussed by Gibbons, however, is a theoretical construct that cannot be obtained at all. Gibbons extends this same analysis beyond the one-factor CAPM model based on the unobservable Market Portfolio to include multiple factor asset pricing models based on multiple factors, where each of the factors are not necessarily observable. Gibbons refers to these factors as “hedge portfolios,” but each “hedge portfolio” is a pure factor portfolio constructed such that they have an exposure (beta) of 1 to a single factor and no exposure to any other factor. As Gibbons states, these “hedge portfolios” are “not necessarily observable by the econometrician.” (Gibbons, p. 222). Again, the use of the term “observable” here has the same meaning as for the market portfolio discussed above, and is different than non-disclosed. In this case, however, there are multiple factors (each represented by a “hedge portfolio” analogous to the “market portfolio”). Gibbons suggests that such unobservable “hedge portfolios” may be modeled using a combination of multiple “mutual funds.” (Gibbons, p. 224). Gibbons’ “mutual funds,” are not mutual funds in the traditional meaning of that term, but are rather analogous to Gibbons’ “proxy for the market portfolio,” that is, they are substitutes for the unobservable “hedge portfolios.”
49. The “traded fund” of our claims is distinct from the theoretical “market portfolio” discussed in Gibbons. The “market portfolio” cannot be obtained and cannot be traded – it is a theoretical construct which Gibbons repeatedly characterizes as “unobservable.”
50. The “proxy portfolio” of our claims is distinct from and serves a different purpose than the “proxy for the market portfolio” discussed in Gibbons (e.g., at p. 233). In our claims, the “proxy portfolio” has “substantially the same sensitivity coefficients as the traded fund,” and is used to calculate the “estimated value of the traded fund.” Gibbons’ “proxy for the market portfolio,” on the other hand, is expected to be different than the “market portfolio,” and is not used to estimate the value of the “market portfolio.”
51. While Gibbons discusses factor modeling, a technique described in our patent application and involved in our claims, Gibbons has almost no other significance to our claims. Gibbons involves methods of testing models, and does not relate to traded funds. Nothing in Gibbons would have suggested using a proxy portfolio instead of a traded fund to estimate the value of the traded fund and withholding the identities of the assets of the traded fund from investors who trade shares of the traded fund.

I further declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true, and further, that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

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Declaration of Charles A. Baker
Appl. No. 10/753,069

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By: Charles A. BakerDate: 9/28/09NYSE Euronext
20 Broad St., 10th Fl.
New York, NY 10005